

What is claimed is:

1. A microelectromechanical system comprising:

a substrate;

5 a platform;

at least one tether laterally moveable with respect to said substrate in a direction parallel with a lengthwise axis of said tether and coupled at one end thereof to said platform; and

10 at least one compliant member pivotably attaching said platform to said substrate such that in response to lateral movement of said tether away from said platform said platform swings upwardly and away from said substrate, said at least one compliant member being configured to permit said platform to be elevated in its entirety from said substrate.

15 2. The system of Claim 1 wherein said platform includes a frame portion extending therefrom, said frame portion being pivotably attached to said substrate by said at least one compliant member and coupled to said at least one tether by at least one compliant member.

20 3. The system of Claim 2 wherein said compliant members comprise segmented torsional springs.

25 4. The system of Claim 2 wherein said frame portion is coupled to said at least one tether by at least one compliant member at a first point and attached to said substrate by a pair of compliant members at second and third points thereof, said second and third points being located between said first point and an end of said at least one tether opposite the end of said at least one tether attached to said frame.

5. The system of Claim 1 further comprising:

30 an actuator microstructure formed on said substrate, said actuator microstructure being coupled to said at least one tether and operable to effect lateral movement of said at

least one tether in the direction parallel with the lengthwise axis of said at least one tether.

6. The system of Claim 5 wherein said actuator microstructure comprises an
5 electrostatic actuator operable in response to a voltage applied across terminals thereof.

7. The system of Claim 5 further comprising:
at least one displacement multiplier coupling said at least one tether to a laterally
moveable output of said actuator microstructure, said at least one displacement multiplier
10 being configured for amplifying lateral movement of said laterally moveable output of
said actuator microstructure into larger lateral movement of said at least one tether.

8. The system of Claim 7 wherein said actuator microstructure comprises a
plurality of separate actuator units having a corresponding plurality of separate moveable
15 outputs, and wherein said system further comprises:
a yoke coupling the moveable outputs of said plurality of actuator units to said at
least one displacement multiplier.